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Qualitative analysis of the psychological stress and impact of psychiatric and psychological interventions on treatment of oral potentially malignant disorders.

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Abstract: Human mental stress is a major factor in recent busy life. Stress analysis and management in many ways are under study. However, except for OLP, studies suggesting the relationship between stress and the other oral PMD are very few. Studies directed towards the psychological management of this stress factor and there influence on current treatment strategies are also lacking. In this study, we will try to establish relationship of oral PMD to stress. Secondly, this will also try to look into the aetiology of the disorder in psychological dimension. Thirdly, we want to see the impact of psychiatric and psychological interventions on treatment of the condition. This study will have a substantial impact not only in understanding the aetiology of the disorder but also on the current standard treatment methods. The aim of this paper is to assess the level of anxiety and depression in patients with oral PMD and then compare the treatment outcome in these patients receiving the standard dental treatment with appropriate psychiatric treatment. To assess the impact of these treatments we also compare the treatments of both the groups to a control group.

Keywords: psychological stress ,psychological interventions, oral potentially malignant disorders.

1. INTRODUCTION:

Oral potentially malignant disorders include leukoplakia, erythroplakia, palatal lesions in the reverse smoker, submocous fibrosis, acinic keratose, lichen planus, discoidal lupus erythematosus, immunodeficiency in the context of cancer pre-disorder. oral disease is an

area of genetically altered tissue which is more likely than a normal tissue to develop cancer.[2,3] Leukoplakia, erythroplakia, lichen planos and submucosal fibrosis are the most common.13 Oral PMD incidence studies in India show that people who used tobs – smoked, chewed, or both – develop most lesions, with a rate between 5.2⁄1000 and 30.2⁄1000 of annual incidence, depending on the pattern of usage. The fewest lesions have been produced from 0.6⁄1000 to 5.8⁄1000 per annum by nonusers of tobacco. [4, 5]. An annual rate of incidependency rates of 1.1–2.4⁄1000 was recorded for males and 0.2–1.3/2000 females in a 10-year follow up study conducted with more than 30 000 people from three distinct geographical areas of India, chosen due to the different forms of tobacco practice there [6]. Although some proportion of oral white patches has no known cause, tabacco use is the usual pre-desposing factor in intraoral white lesion development. Throughout the developed world, the vast majority of leukoplakias are found in tobacco use and areca nut use alone or combined [7].

Preda et al. (1990)[8] described that the oral mucosa was its main ergogenic area and is very nuanced and sensitive to some psychological stimuli. The area is highly fragile. Oral Lichen Planus was also one of the psychosomatic diseases for these readers. Soto Araya et al. (2004)[9] A positive relationship has recently been identified between psychological disorders and OLP, considering OLP patients' stress and anxiety rates as high. Koray et al. (2003) [10]. described that OLP patients showed elevated levels of anxiety and salivary cortisol and concluded that it is closely vulnerable to anxiety. They therefore suggest that psychological support is necessary, in addition to the traditional treatment of OLP patients. Though, Macleod (1992) and Humphris& Field (1992) [11,12]concluded that There can be no corresponding correlation between stress and OLP incidence.

2. MATERIALS AND METHODOLOGY

The index study was a hospital-based study done in Institute of Medical Science (IMS) and SUM Hospital and Institute of Dental Science (IDS), Bhubaneswar. This was a prospective study of 28 days duration and the samples were collected consecutively. Initially 15 patients were allotted in three different groups, constituting a total of 45 patients suffering from OMPD, attending OPD of IDS. After the participants gave their consent and the inclusion and exclusion criteria groups were assigned. The inclusion criteria consisted of patients diagnosed with oral PMD, age 18-60 years and patients ready to give consent for study. Those patients with dementia or other neuropsychiatric disorders (uncooperative for psychological assessment) and patients with serious medical conditions were excluded from the study. The first group received only the standard dental treatment consisting of injectable steroid. The second group received antidepressant, benzodiazepine and three session of Cognitive behavior therapy within a span of 28 days. The third group received only local anesthetic cream and calcium tablets.

All the patients had to fill up the Socio demographic data sheet and then receive treatment for the assigned group on day 0 and assessment was done. The OMPD was assessed for the size of the lesion in millimeter scale and pain due to lesion was assessed on Visual Analogue Scale (VAS). The assessment of depression and anxiety was done in group receiving psychiatry treatment and control group on Hamilton Depression Rating Scale (HAM-D) and Hamilton Anxiety Rating Scale (HAM-A) respectively. The patients were asked for follow up on day 14 and day 28 for reassessment. During follow up 15 patients drop out from the study out of which 9 patients could not be reached, 5 patients withdrew their consent and one patient developed other medical condition. All the data collected were subjected forStatistical analysis on SPSS 20 v.

3. EXPERIMENTAL RESULTS

Table 1.1 shows the number of males and females which were included in our study population. The result shows males were higher than females in all the groups. The mean age of the patients receiving only dental treatment was 26.09 ± 9.62 years and in patients receiving psychiatry treatment was 27.80 ± 5.60 years. The disparity between the three sample groups with regard to age was not important, as shown in Table 1.2. The frequency of clinical characteristic of the study population is shown in Table 1.3. This shows that predisposing factor is present in all the study groups for around 72.7% to 77.8%. The study population has a positive family history for 54.5% in patients receiving only dental treatment, for 50% in patient receiving only psychiatry treatment and 44.45% in control group. The number of episodes in the population varied mostly in range of 1-4 episodes.

Table 1.1 Percentage of males and females in the study

		Only dental (N%)	Only psy (N%)	Control (N%)
SEX	MALE	6 (54.5%)	6 (60%)	7 (77.8%)
	FEMALE	5 (45.5%)	4 (40%)	2 (22.2%)
	TOTAL	11	10	9

Table 1.2 Mean age of the patients in the study

	Mean age ± SD	df	F	p
Only dental (11)	26.09 ± 9.62	2	0.391	0.680
Only psy (10)	27.80 ± 5.60			
Control (09)	29.33 ± 8.69			

Table 1.3 Percentage of different clinical characteristics in population in the study groups

		Only dental (N%)	Only psy (N%)	Control (N%)
Predisposing factor	Present	8 (72.7%)	7 (70%)	7 (77.8%)
	Absent	3 (27.3%)	3 (30%)	2 (22.2%)
Family history	Present	6 (54.5%)	5 (50%)	4 (44.45%)
	Absent	5 (45.5%)	5 (50%)	5 (55.55%)
Number of episodes	1-4	3 (27.3%)	7 (70%)	4 (44.45%)
	5-10	5 (45.5%)	3 (30%)	4 (44.45%)
	>10	3 (27.3%)	0 (0%)	1 (11.11%)

Table 2.1 Comparison of size of the lesion and pain intensity on VAS in between the groups on day 0, day 14 and day 28

		Mean square	F	p
Size of lesion on day 0	Between groups	0.675	0.639	0.535
	Within groups	1.056		
Size of lesion on day 14	Between groups	16.742	17.134	<0.001***
	Within groups	0.977		
Size of lesion on day 28	Between groups	6.950	13.031	<0.001***
	Within groups	0.533		
Pain on VAS on day 0	Between groups	0.300	0.126	0.882
	Within groups	2.374		
Pain on VAS on day 14	Between groups	16.495	20.422	<0.001***
	Within groups	0.808		
Pain on VAS on day 28	Between groups	14.039	55.023	<0.001***
	Within groups	0.255		

Table 2.2 Post hoc analysis using Tukey's test for comparison between the groups in respect to size of the lesion and pain intensity

		P value
Size of lesion on day 0	Only dental and only psy	0.588
	Only dental and control	0.620
	Only psy and control	0.999
Size of lesion on day 14	Only dental and only psy	<0.001***
	Only dental and control	<0.001***
	Only psy and control	0.984
Size of lesion on	Only dental and only psy	0.164

day 28		
	Only dental and control	<0.001***
	Only psy and control	0.010**
Pain on VAS on day 0	Only dental and only psy	0.897
	Only dental and control	0.999
	Only psy and control	0.906
Pain on VAS on day 14	Only dental and only psy	0.41*
	Only dental and control	<0.001***
	Only psy and control	0.002**
Pain on VAS on day 28	Only dental and only psy	0.999
	Only dental and control	<0.001***
	Only psy and control	<0.001***

Table 2.1 shows that when the size of the lesion was compared in all the three study groups on day 0, there was no significant difference (p= 0.882) and therefore the groups were comparable with respect to initial size of the lesion. On day 14, when the size of the lesion was compared, the result was shown to be extremely important (p=<0.001). In post hoc study it shows the important result was due to improvement with dental treatment and not with psychiatry treatment or in the control group. On day 28, the study also shows highly significant change in the size of the lesion (p= <0.001). In post hoc analysis it shows that the important improvement is due to both dental treatment and psychiatry treatment, when compared with control. The result also shows that the improvement shown in the group receiving dental treatment and the group receiving psychiatry treatment is not significant (p= 0.164).

Pain due to lesion was measured on VAS in our study. The results show that there was no significant difference (p= 0.882) in pain intensity in between the three groups at the time of assessment on day 0; but when the results were compared on day 14, it shows a difference in statistical parameter (p= <0.001) in between the groups. The post hoc analysis suggested that this difference was because of improvement shown in groups receiving both dental (p= <0.001) treatment and psychiatry treatment (p= 0.10) when compared to control collection. There was no significant difference (p= 0.41) in the improvement with dental treatment and psychiatry treatment at the end of day 14. The result at end of the day 28 shows that the improvement in the control group was not significant on pain scale.

TABLE 3.1 Comparison of depression and anxiety level in between group receiving psychiatry treatment and control group on day 0.

		MEAN ± SD	t	df	P value
Ham d score	Only psy	14.00 ± 4.00	1.345	17	0.196

on day 0					
Ham d score on day 0	control	15.89 ± 1.36			
Ham a score on day 0	Only psy	19.20 ± 2.44	0.024	17	0.981
Ham d score on day 0	control	19.22 ± 1.48			

Table 3.1 shows that the group receiving psychiatry treatment and control group had comparable mean depression level measured on HAM-D (p= 0.196) and anxiety level measured on HAM-A (p= 0.981) when compared on day 0. After psychiatry treatment was given for 28 days, improvement was noted which was statistically significant (p= <0.001) associated to switch cluster as shown in table 3.2.

TABLE 3.2 Comparison of depression level and anxiety level before and after psychiatry treatment on day 0 and day 28

		MEAN ± SD	t	df	P value
Only psy	HAMD Score on day 0	14.00 ± 4.00	9.222	9	<0.001***
	HAMD Score on day 28	8.20 ± 3.43			
	HAMA Score on day 0	19.20 ± 2.44	14.375	9	<0.001***
	HAMA Score on day 28	11.70 ± 3.69			
Control	HAMD Score on day 0	15.89 ± 1.36	1.000	8	0.347
	HAMD Score on day 28	14.89 ± 3.69			
	HAMA Score on day 0	19.22 ± 1.48	1.139	8	0.288
	HAMA Score on day 28	18.44 ± 2.56			

4. DISCUSSION

This present study was done on outpatient basis on patients of OPMD with the motive to compare the treatment outcome of standard dental treatment versus psychiatry treatment because most of the previous studies have established a relationship between OPMD and stress[13,14].In this study, it was found that males participated more than females. One particular reason may be reluctance of the female patients to visit psychiatry OPD. Previous studies have foundfemales having less stigma towards psychiatry treatment [15]. The number of episodes were found mostly within 1-4 episodes followed by 5-10 episodes.In this study, it was found the mean lesion size of the oral lesion were comparable initially before treatment. Similarly, the average pain intensity at the initial assessment was also comparable.

At the end of 14 days it was found that there was significant improvement in terms of reduction in both size of the graze and harshness of agony with dental therapy. This was consistent with prior studies which have established a clear-cut role of dental treatment in improvement of the condition[16].However, in this study it was found that there was no significant improvement in size of the lesion with psychiatric treatment within this period.But, the improvement in pain scale was found to be significant after 14 days of treatment with psychiatric management. One of the reasons of improvement in pain scale may be that the pain modulated by stress factors which is found to be associated in such patients [17].

When assessment was done at the end of 28days it was found that there was significant improvement in size of lesion and pain scale with only psychiatric treatment as compared to placebo. When compared with only dental treatment, improvement with both the modality of treatment is found to be comparable. Hence, it can be concluded that though there is improvement in OPMD with both dental treatment steroid/vitamin and psychiatric treatment, later takes more time to achieve similar level of improvement in terms of both size of the lesion and pain due the lesion.

Due to anti-inflammatory property of the steroid it reduces very fast but in contrary antidepressant drugs takes around 28 days to get the same effect. But the side effect of the steroid is not there with antidepressant drugs for long term treatment [11,18]. Patients with long standing multiple chronic diseases cannot allow the steroid therapy due to its adverse effect. So, the treatment of OPMD has to differentiate according to the severity and the disease complex.

The direct role of antidepressant and psychotherapy could not be established by this study as stress might be an important modulating factor in the disease process[18,19]. There is significant improvement in the mean HAM-A and HAM-D scores with psychiatric treatment related to controls. This shows there may be a substantial decrease in stress which may be the cause of improvement in the OPMD with psychiatric treatment. In a previous study, it was found that when psychiatric treatment was given in adjunctive to steroid therapy, they remained actual in plummeting the extent of the lesion. [20]A further long-term study is required to establish the role of antidepressant medication and psychotherapy in treatment of OPMD with a larger population.

5. CONCLUSION

This study shows there may be a scope of antidepressant and psychotherapy in treatment of OPMD especially in situations where steroid therapy cannot be used.Although antidepressant and psychotherapy takes longer time than steroids for reducing the size of the lesion and pain intensity, the long term side effects of steroids having more morbidity.The recurrence rate of steroid use is an important considerable factor in treatment of OPMD. In future studies, we may look for use of psychiatric treatment for long term management of OPMD. Hence, steroid may be used in acute stage of the illness and psychiatric treatment may be an important alternative to steroids in long term management and relapse prevention.

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